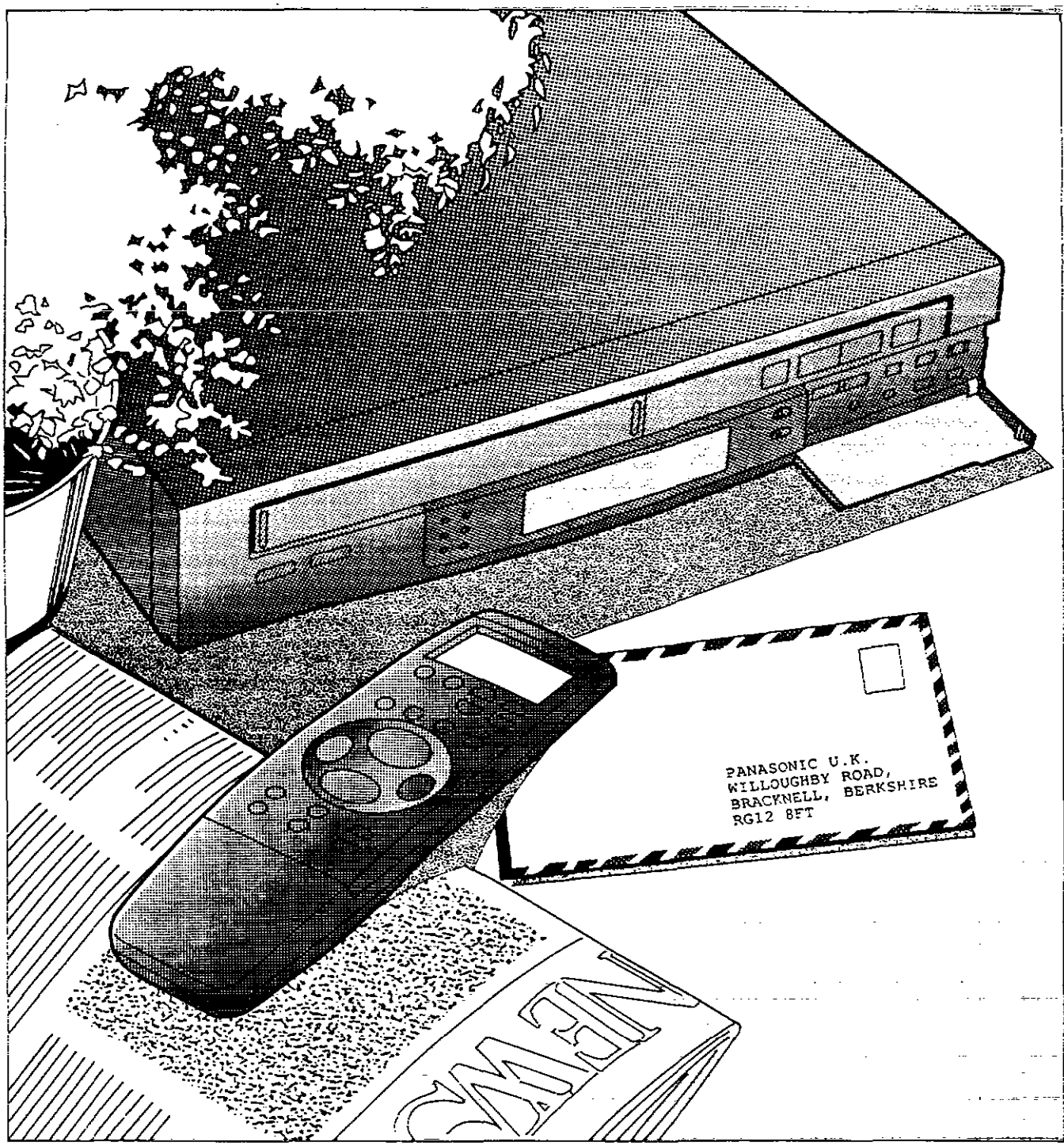
# Panasonic

Video Cassette Recorder

# NV-HD90B

Operating Instructions




VIDEO*Plus+* Hi-Fi STEREO

VHS PAL SUPER DRIVE SYSTEM

Before attempting to connect, operate or adjust this product, please read these instructions completely.

VQT5592

# *Dear Customer*

May we take this opportunity to thank you for purchasing this Panasonic Video Cassette Recorder.

We would particularly advise that you carefully study the Operating Instructions before attempting to operate the unit and that you note the listed precautions.

## Video Plus+ Programming System

Programming is now easier than ever: simply enter the PlusCode provided in the programme schedule column carried by newspapers and magazines.

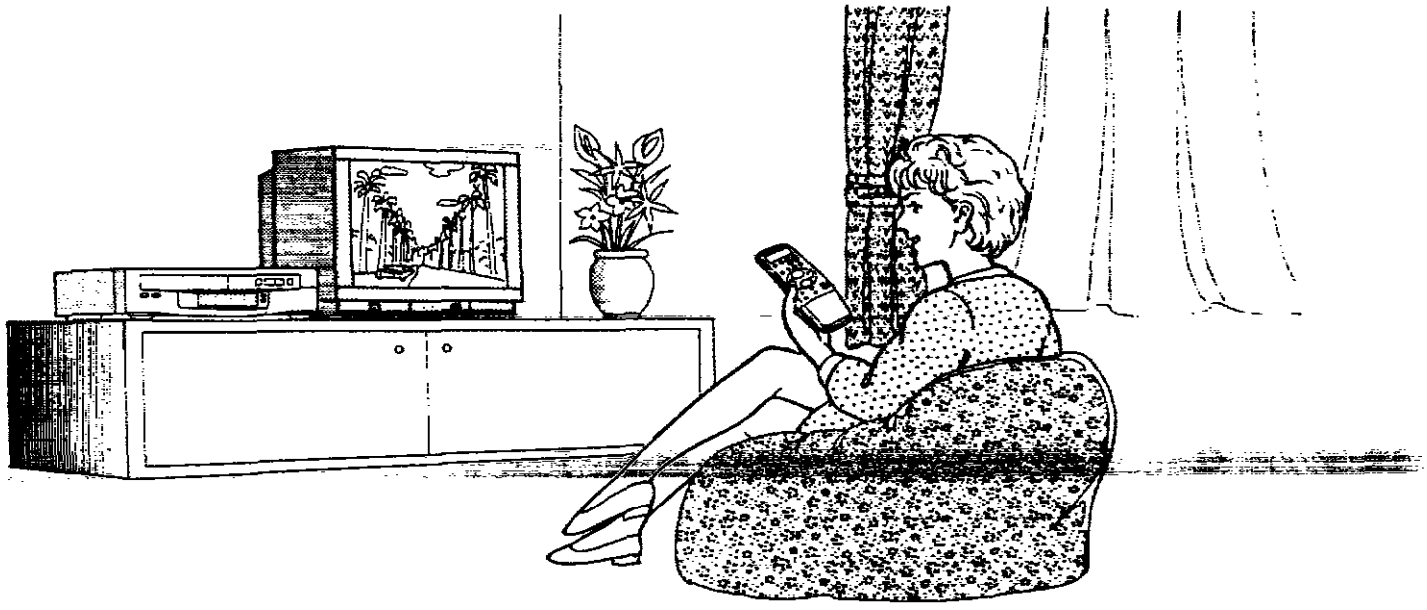
- Video Plus+ and PlusCode are trademarks of Gemstar Development Corp. Video Plus+ system is manufactured under license from Gemstar Development Corporation.

## AI Crystal View Control

Introducing AI Crystal View Control, an innovative new technology for high picture quality. This technology uses an AI microprocessor to intelligently control the relationship between the tape heads and circuitry, bringing out the maximum performance of each. The result is consistently optimum picture quality.

## HQ (High Quality) Picture System

Video recorders carrying the HQ symbol mark feature the new VHS High Quality Picture System. This system assures complete compatibility with VTRs that use the conventional VHS system.



Information for Your Safety

**IMPORTANT**

**Your attention is drawn to the fact that the recording of pre-recorded tapes or discs or other published or broadcast material may infringe copyright laws.**

**WARNING**

**TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.**

This apparatus was produced to BS 800.

## FOR YOUR SAFETY

■ **DO NOT REMOVE OUTER COVER.**

To prevent electric shock, do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

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# Caution for AC Mains Lead

**For your safety please read the following text carefully**
This appliance is supplied with a moulded three pin mains plug for your safety and convenience.
A 5 amp fuse is fitted in this plug.
Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5 amps and that it is approved by ASTA or BSI to BS 1362.
Check for the ASTA mark ⓐ or the BSI mark ♡ on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.
If you lose the fuse cover the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local Panasonic Dealer.

IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.
THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13 AMP SOCKET.

If a new plug is to be fitted please observe the wiring code as shown below.
If in any doubt please consult a qualified electrician.

## IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

Blue: Neutral
Brown: Live

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured BLUE must be connected to the terminal in the plug which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

Under no circumstances should either of these wires be connected to the earth terminal of the three pin plug, marked with the letter E or the Earth Symbol ⏚.

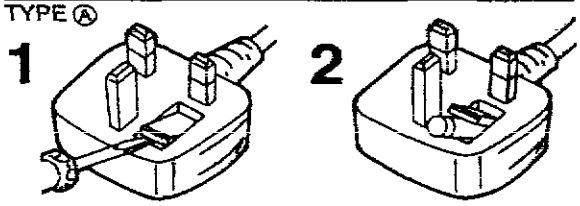
## How to replace the Fuse

- There are two types of the AC Mains Lead assembly: Ⓐ and Ⓑ as shown below.

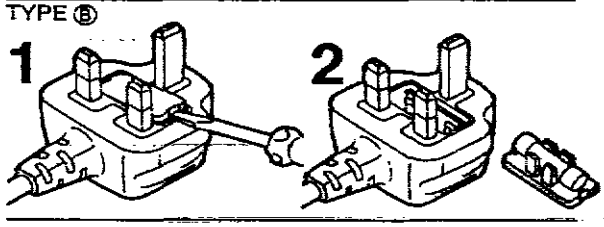
1 Open the fuse compartment with a screwdriver.

2 Replace the fuse and fuse cover.

TYPE Ⓐ



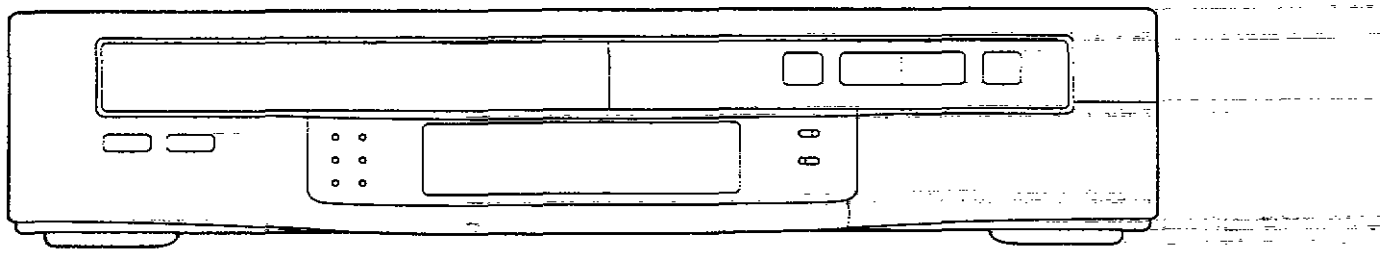

TYPE Ⓑ



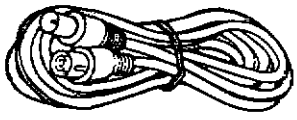
# Unpacking



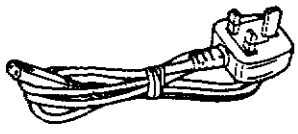
**Check and identify the supplied accessories, and then set up this VTR after reading "Setting up".**



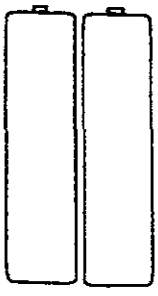
☐ RF coaxial cable for connecting between this VTR and a TV (1 pc.)
VJA0376-1 or VJA0376-B



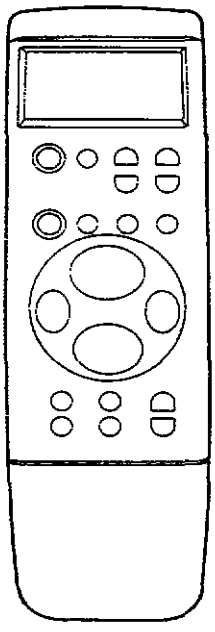
☐ AC mains lead (1 pc.)
VJA0733 or VJA0733-A



☐ Batteries for the remote controller (2 pcs.)
UM3 or R6 type



☐ Remote controller (1 pc.)
VEQ1583



# Setting Up



## Connections

This tells you how to connect with an aerial, TV, etc.

## Tuning the TV to your VTR

The VTR supplies a signal to the TV set via the RF coaxial cable on channel 36 of the UK broadcasting system. Your TV must be tuned into this channel in order to view the VTR playback picture.

If the connection to the TV includes the 21-pin scart cable or Audio/Video cable, the playback picture can be viewed by selecting AV on your TV. The RF coaxial cable must still be connected as shown on page 8, but the TV need not be tuned to channel 36.

## Infra-red Remote Controller

## Controls and Connection Sockets

This gives a detailed explanation of the function of each button, switch and connection socket.

## Setting the Clock of the VTR using the Remote Controller

The built-in clock is used to activate the timer for automatic recording and must be set to the correct time.

## Setting the Remote Controller for Operation of your TV

You can operate some makes of TVs using the supplied Remote Controller after this setting up.

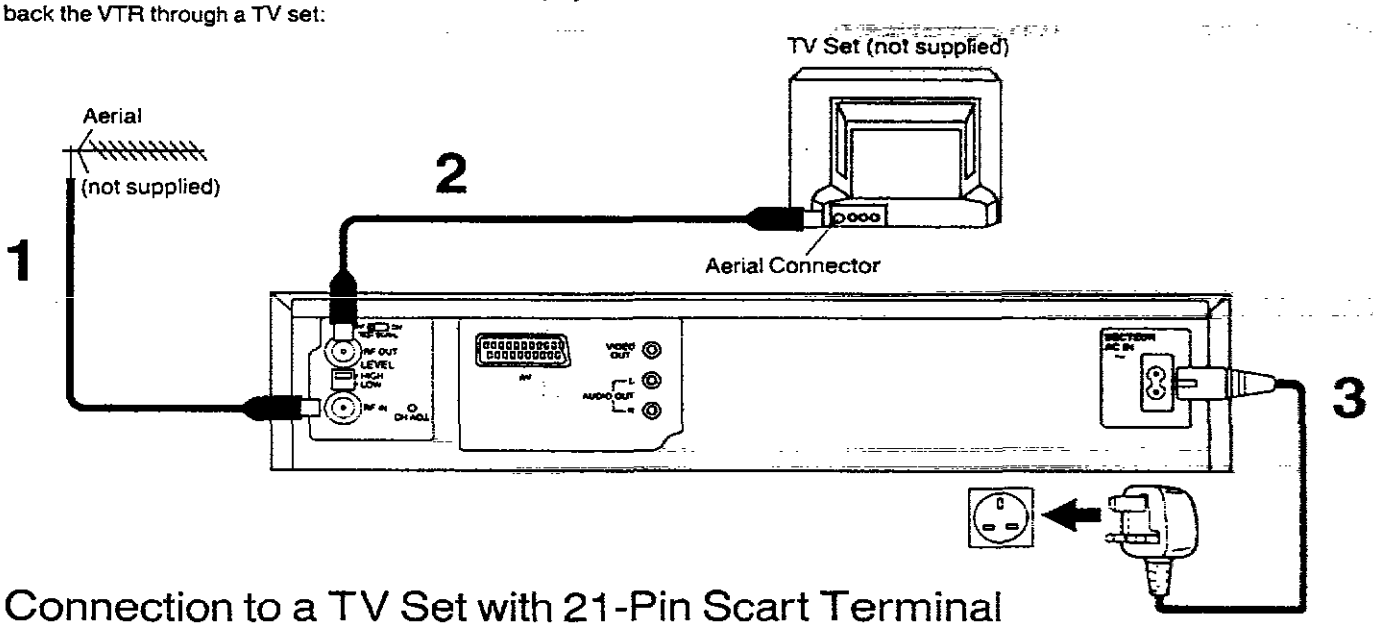
## Storing TV Broadcasts into your VTR

The VTR is fitted with its own TV tuner (just like a normal TV set) and can be tuned to receive up to 42 TV broadcast stations.

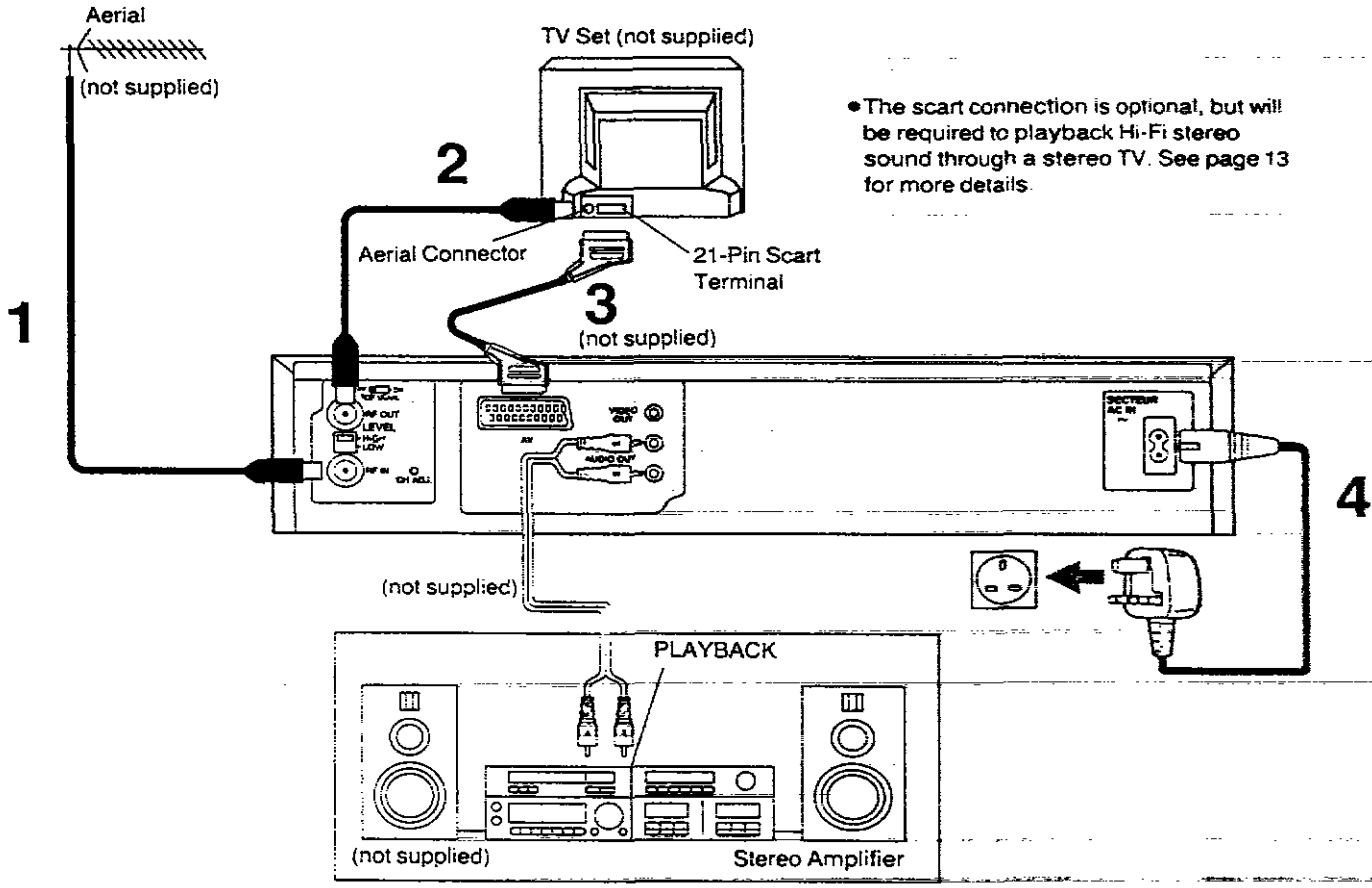
# Connections

## Basic Connections

The following connections are required to record and play back the VTR through a TV set:



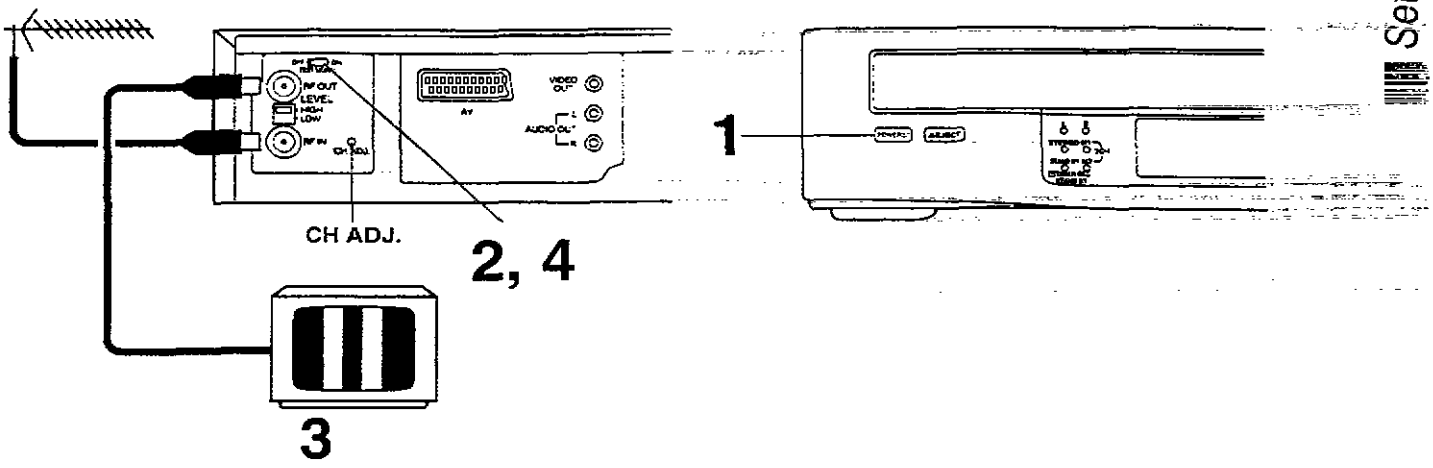

## Connection to a TV Set with 21-Pin Scart Terminal




- The scart connection is optional, but will be required to playback Hi-Fi stereo sound through a stereo TV. See page 13 for more details.

- Connection to a Stereo Amplifier

# Tuning the TV to your VTR




It is possible to view the video picture on your TV in the same way that you watch TV broadcasts.

If you have connected the VTR to the TV through the 21-pin scart terminal or Audio/Video sockets, then you do not need to follow the procedure mentioned below.

## Preparation

- Turn on the TV.
- Refer to the operating instruction of the TV set and carry out tuning/preset procedure.

## Operations

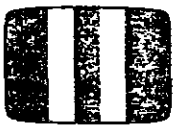
**1**

Turn on the VTR.

**2**

To generate a test pattern, set **TEST SIGNAL** to ON.

**3**



Set the TV to an unused position which you wish to use for your video playback.

- Tune the TV until the test pattern appears on the screen.
- On Panasonic TV the programme number 0 should be selected to obtain best performance.

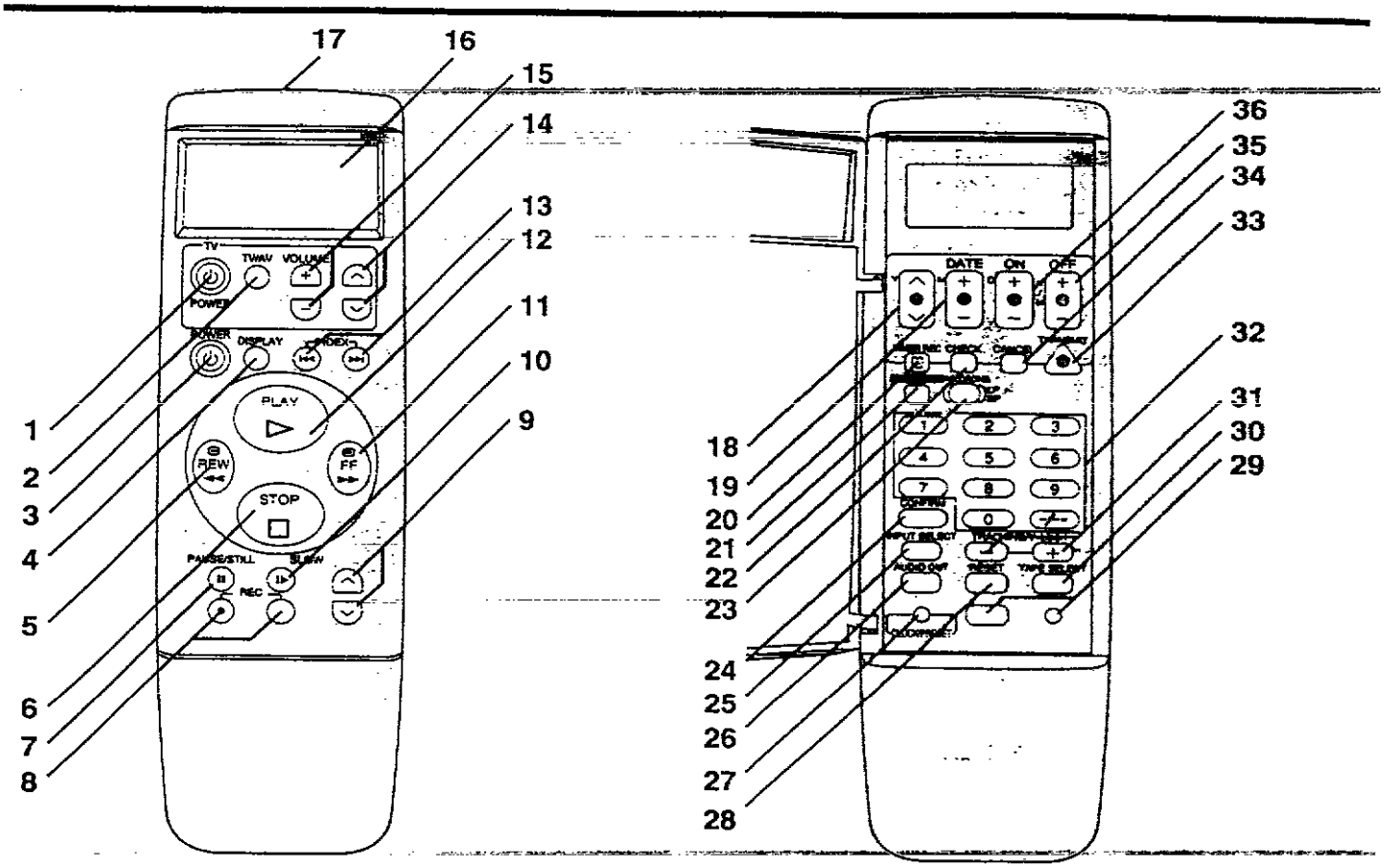
**4**

Set **TEST SIGNAL** to OFF.

**Note:**
The test signal is transmitted on channel 36 of the UK broadcasting channels. If you are encountering interference from another broadcast on the video channel, you may readjust to a free channel (30–42) by using the **CH ADJ.** screw which is located on the rear of the VTR.

Please note that if the **CH ADJ.** screw is used then you will have to retune your TV to the test signal as in item **2** to **4** above.

# Infra-red Remote Controller




**1 POWER (TV)**
To switch the TV from on to standby mode or vice versa. In standby mode, the TV is still connected to the mains.
- With some TV models, it may only be possible to switch the TV to standby mode using this button.

**2 TV/AV**
To select the TV input.

**3 POWER**
To switch the VTR from on to standby mode or vice versa. In standby mode, the VTR is still connected to the mains.

**4 DISPLAY**
To change the indication on the VTR Display.

→Clock→Counter→Remaining Tape Time→

**5 REW (REWIND)**

| | |
|---|---|
| In the stop mode: | To rewind the tape. |
| In the playback mode: | To search backward. |
| In the rewind mode: | To obtain high speed picture. |

"◁◁" is lit.

**6 STOP**
To stop any playback or recording.

**7 PAUSE/STILL**
During playback: Still picture
During recording: To interrupt recording.

**8 REC**
To start a recording.
- Press both buttons simultaneously.

**9 ∨∧ (VTR)**
To select the required programme position (TV station) of the VTR.

**10 SLOW**
For the slow motion playback function.

**11 FF (FAST FORWARD)**

| | |
|---|---|
| In the stop mode: | To fast forward the tape. |
| In the playback mode: | To search forward. |
| In the fast forward mode: | To obtain high speed picture. |

"▷▷" is lit.

**12 PLAY**
To start playback. "▷" is lit.

**13 INDEX**
For the index search function.

**14 ∨∧ (TV)**
To select the required TV station of the TV.

**15 VOLUME**
To adjust the volume of the TV.

**16 Display**

**17 Infra-red Transmitter**
The programming data are transmitted from here to the VTR.

**18** ∨ ∧ (Y)
- To programme a timer recording.
- To set the clock.

**19** DATE (M)
- To programme a timer recording.
- To set the clock.

**20** TIMER REC
To turn the timer recording function on and off.
⊡ is lit or not lit.
Once operating timer recording function, the normal VTR operation is not possible unless this button is set to off.

**21** VIDEO PLUS+
To programme a Video Plus+ PlusCode.

**22** CHECK
To check timer programmes while the Timer recording function is on.

**23** RECORDING SP/LP
To select the tape speed desired for recording.
SP gives the best picture quality.
LP gives the longest recording time.

**24** CONFIRM
To convert the data of a PlusCode.

**25** INPUT SELECT
To select the "A1" external recording source.

**26** AUDIO OUT
To select the desired sound mode.
At the every push of this button, the audio output mode changes as follows.

→Stereo→Left→Right→Normal audio track—┐

The Left (L) and Right (R) Indicators show which sound mode is selected in the following way.

| | |
|---|---|
| Stereo: | Both the Left (L) and Right (R) Indicators are lit. |
| Left: | The Left (L) Indicator is lit. |
| Right: | The Right (R) Indicator is lit. |
| Normal: | Both the Left (L) and Right (R) Indicators are not lit. |

**27** CLOCK/PRESET
- To set the clock.
- To set the satellite position.
- To set the manufacturer number of the TV.

**28** RESET
To reset the tape counter (elapsed time) to "0:00.00".
- The tape counter is automatically reset to "0:00.00" when a video cassette is inserted.

**29** No function.

**30** TAPE SELECT
To set the cassette tape length in order to obtain correct indication of the remaining tape time.
E195: For E30, -60, -80, -120, -180 and -195 tapes
E240: For E240 tape
E260: For E260 tape

**31** TRACKING/V-LOCK
To adjust the tracking and the vertical locking.
(See page 21.)

**32** Programme Position Selector Buttons
- To select the programme positions (1–42).

9: (9)

19: (-/--) → (1) → (9)

- To enter a PlusCode.

**33** TRANSMIT
To transmit the data that has been set on the remote controller to the VTR.

**34** CANCEL
To cancel the settings made for a timer recording.

**35** OFF (H/M)
- To programme a timer recording.
- To set the clock.
- To set the manufacturer number of the TV.
- To set the satellite position.

**36** ON (D)
- To programme a timer recording.
- To set the clock.

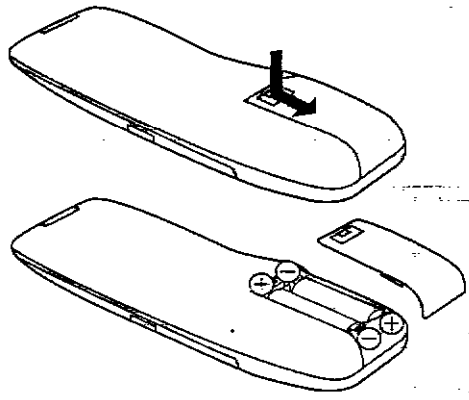
## Power Source for the Remote Controller

The remote controller is powered by 2 "UM3" or "R6" size batteries. The life of the batteries is about one year, although this depends on the frequency of use.

## Precautions for Battery Replacement

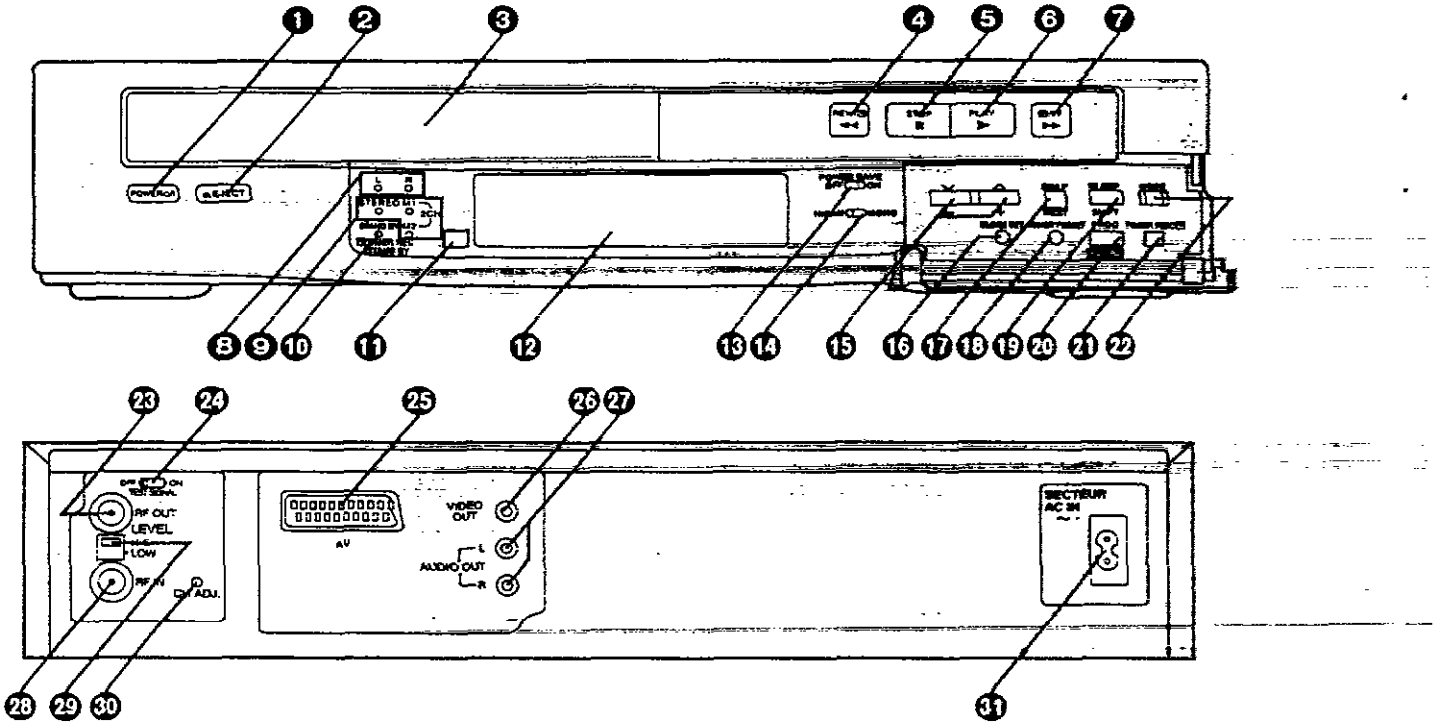
- Load the new batteries with their polarity (⊕ and ⊖) aligned correctly.
- Do not apply heat to the batteries, or an internal short-circuit may occur.
- If you do not intend to use the remote controller for a long period of time, remove the batteries and store them in a cool and dry place.
- Remove spent batteries immediately and dispose of them.
- Do not use an old and a new battery together, and never use an alkaline battery with a manganese battery.

## Installing the Batteries



# Controls and Connection Sockets

This gives a detailed explanation of the function of each button, switch and connection socket.




**❶ POWER ⏻/I**
Press to switch the unit from on to standby mode or vice versa. In standby mode, the unit is still connected to the mains.

**❷ EJECT**
To eject a video cassette.

**❸ Cassette Compartment**
Insert a video cassette here.

**❹ REW (REWIND)**
In the stop mode: To rewind the tape.
In the playback mode: To search backward.
In the rewind mode: To obtain high speed picture.
"◁◁" is lit.

**❺ STOP**
To stop any playback or recording.

**❻ PLAY**
To start playback.
"▷" is lit.

**❼ FF (FAST FORWARD)**
In the stop mode: To fast forward the tape.
In the playback mode: To search forward.
In the fast forward mode: To obtain high speed picture.
"▷▷" is lit.

**❽ Audio Output Mode Indicators**
The Left (L) and Right (R) Indicators show which sound mode is selected in the following way.
Stereo: Both the Left (L) and Right (R) Indicators are lit.
Left: The Left (L) Indicator is lit.
Right: The Right (R) Indicator is lit.
Normal: Both the Left (L) and Right (R) Indicators are not lit.

**❾ Indicator Lamps for M1, M2 and Stereo Reception**
When receiving a TV programme, automatically indicates when a TV programme is broadcast with the NICAM sound system.

**❿ STAND BY/TIMER REC STAND BY Indicator**
Lights up green while the POWER SAVE Switch is at "ON" provided that the VTR is connected to the AC mains power and its power is off.
This indicator lights up red while the timer recording function is on.

**⓫ Infra-red Remote Control Receiver Window**

**⓬ Display**

⑬ **POWER SAVE**
OFF: For normal VTR operation.
Characters appear on the display even when the VTR's power is off.
ON: For operating the VTR in the power-saving mode.
No characters appear on the display when the VTR's power is off.

⑭ **NICAM/MONO**
NICAM: Normally set at this position.
MONO: Only set at this position to record the normal sound during a NICAM broadcast or if the stereo sound is distorted due to inferior reception conditions.

⑮ ∨ ∧/− +
To select the required programme position (TV station).
To set the clock and timer recording.

⑯ **CLOCK SET**
To set the time.

⑰ **SP/LP/NEXT**
To select the tape speed required for recording.
SP gives the best picture quality.
LP gives the longest recording time.
To proceed to the next item during setting procedure.

⑱ **TUNER PRESET**
To initiate TV station settings for the tuner.

⑲ **SLEEP/SHIFT**
To set the time to turn off the VTR automatically.
To memorize programme position.

⑳ **PROG/CHECK**
To select a timer programme number.
"P1, P2, P3... or P8" is lit.
To display details of preset timer recording while the timer recording function is on.

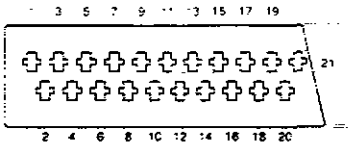
㉑ **TIMER REC**
To turn the timer recording function on and off.
⊡ is lit or not lit.
Once Operating timer recording function, the normal VTR operation is not possible unless this button is set to off.

㉒ **REC**
To start a recording.

㉓ **RF OUT**
To connect to the aerial terminal on a TV set.

㉔ **TEST SIGNAL**
The test signal is transmitted on channel 36.

㉕ **AV**
This 21-pin scart terminal carries input and output signals for both picture and sound. TV sets equipped with a similar socket can be connected here.
This is also called Scart
Peritel
Euro Connector
Euro AV




| | | | |
|---|---|---|---|
| 1 | AUIDO OUTPUT CH2 (R) | 8 | SWITCHING VOLTAGE |
| 2 | AUDIO INPUT CH2 (R) | 17 | VIDEO GROUND |
| 3 | AUDIO OUTPUT CH1 (L) | 19 | VIDEO OUTPUT |
| 4 | AUDIO GROUND | 20 | VIDEO INPUT |
| 6 | AUDIO INPUT CH1 (L) | 21 | GROUND |

No connection; 5, 7, 9, 10, 11, 12, 13, 14, 15, 16, 18

㉖ **VIDEO OUT**
To connect a video cable to a TV or another VTR.

㉗ **AUDIO OUT**
To connect a audio cable to a TV, another VTR or stereo audio system.

㉘ **RF IN**
To connect to the external aerial.

㉙ **LEVEL**
Used to adjust the UHF aerial signal strength.
HIGH: For normal position.
LOW: If a diagonal pattern or stripes appear on the picture.

㉚ **CH ADJ.**
To adjust the RF transmitting channel 30~42.

㉛ **AC IN~**
To connect to the main power supply.

# Setting the Clock of the VTR using the Remote Controller

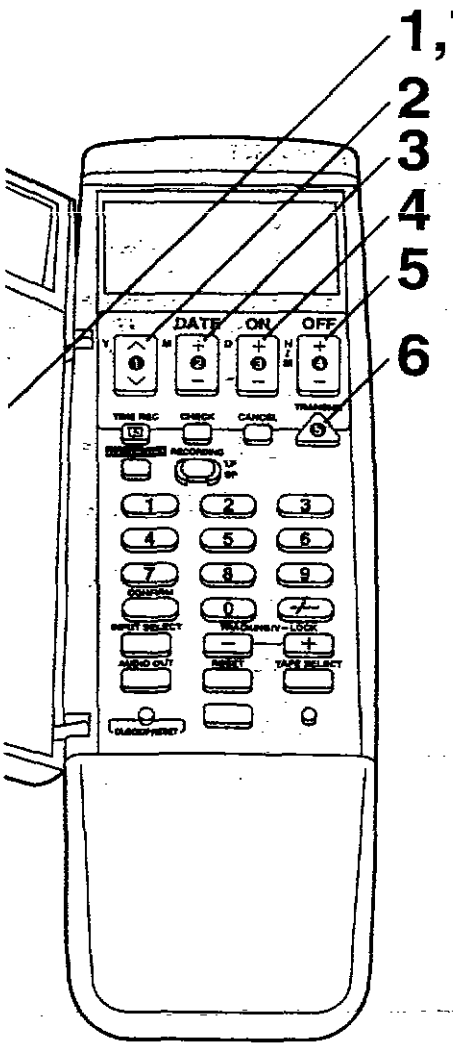
By setting the time on the remote controller's clock and then by transmitting this setting to the VTR, the clocks on both the remote controller and VTR display the same time.
The built-in digital clock employs the 24-hour system.

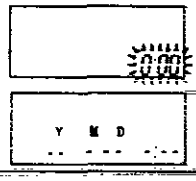
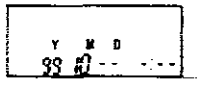
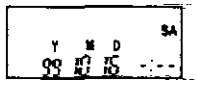
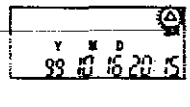
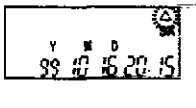
## Preparation

- Turn on the VTR.
- Install the batteries in the remote controller. See page 11.

## For Example:

Date: 16th, October, 1999
Time: 20:15



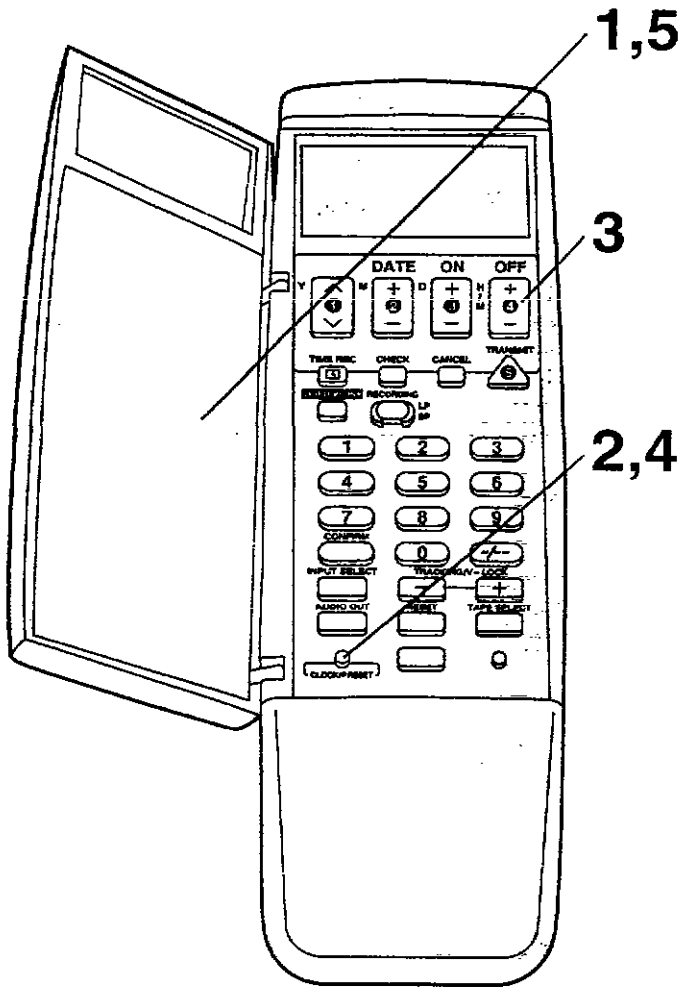

| Operations | Display Symbols | |
|---|---|---|
| 1 |  | Open the door of the remote controller. |
| 2 | | Set **Year** "99". |
| 3 |  | Set **Month** "10". |
| 4 |  | Set **Date** "16". |
| 5 |  | Set **Time** "20:15".<br>• When it is kept pressed, the indication changes in 30-minute steps. |
| 6 |  | Press **TRANSMIT**.<br>• The clocks on both the remote controller and VTR now start displaying the same time from 0 second. |
| 7 | | Close the door of the remote controller. |

**Note:**
To change the previous clock setting, press **CLOCK/ PRESET** for at least 2 seconds. The previous clock setting will be displayed. Then follow steps **2** to **7** above.

# Setting the Remote Controller for Operation of your TV



You can operate some makes of TVs (See Table below) using the supplied Remote Controller after this setting up.



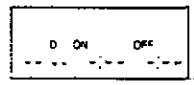

| No. | Manufacturer |
|---|---|
| 1 | Panasonic |
| 2 | |
| 3 | |
| 4 | |
| 5 | GRUNDIG/Blaupunkt |
| 6 | PHILIPS |
| 7 | SONY |

## Preparation

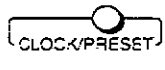
- Turn on the TV.
- Install the batteries in the remote controller. See page 11.

**Operations** **Display Symbols**

**1** Open the door of the remote controller.



**2** Keep **CLOCK/PRESET** pressed for more than 2 seconds and then press it twice.

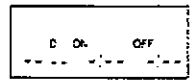


- "TV" now appears on the remote controller's display.

**3** Press **OFF** (+ or −) several times.

- When the number matches the manufacturer of your TV, the TV is turned off (standby).

**4** Press **CLOCK/PRESET**.



**5** Close the door of the remote controller.

### How to change the number

Each time the "+" side of **OFF** is pressed, the number is counted up by one as follows:

→1→2→3...7→

When the "−" side is pressed, the number is counted down by one in the reverse order to that indicated above.

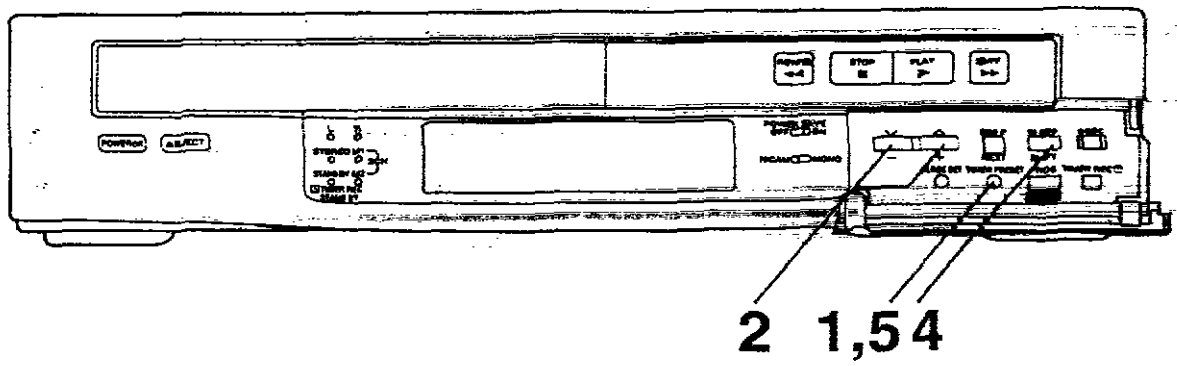
**Note:**

Some TV models cannot be operated using this remote controller.

**When the number is 1, 2, 3 or 4:**

When the TV is turned off (standby) in step **3** above, turn it back on and adjust the TV's volume using this remote controller. The volume can be adjusted if the number matches the manufacturer of TV. If it is not possible to adjust the TV's volume, try setting the number (1 to 4) to match the manufacturer of TV again until the volume can be adjusted.

# Storing TV Broadcasts into your VTR

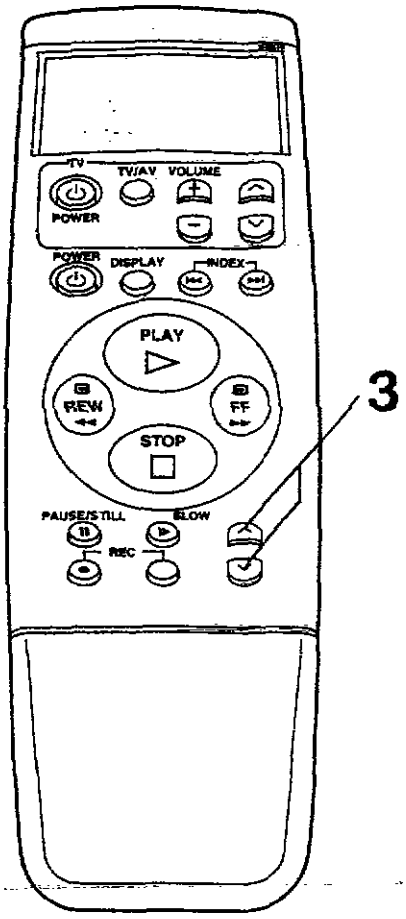



## Introduction

The VTR is fitted with its own tuner (just like a normal TV set) and can be pre-set to receive up to 42 TV broadcast stations.

## Preparation

- Confirm that the TV is on and the VTR viewing channel is selected.
- Turn on the VTR and select any programme position except A1.
- Install the batteries in the remote controller. See page 11.




| Operations | Display Symbols | |
|---|---|---|
| **1** TUNER PRESET | | Keep **TUNER PRESET** pressed for more than 2 seconds. |
| **2** – + | | Search for the TV Station.<br>• If the required station is not displayed, press + or – again |
| **3** | | Select programme position. |
| **4** SHIFT | | Store the broadcast station.<br>• To store the other stations, repeat steps 2 to 4. |
| **5** TUNER PRESET | | Press **TUNER PRESET**. |

**Note:**
While tuning, your VTR may lock onto several weak stations from distant transmitters. Should this occur press + or – again until a strong station is received.

## Channel Plan

You should set the programme positions on the VTR to match the remote controller setting, so when using the Video Plus+ programming the correct broadcast station is recorded.
The table below shows the correct setting:

| Programme position | TV station |
|---|---|
| 1 | BBC1 |
| 2 | BBC2 |
| 3 | ITV |
| 4 | Channel 4 |
| A1, 5~20 | *Satellite input |

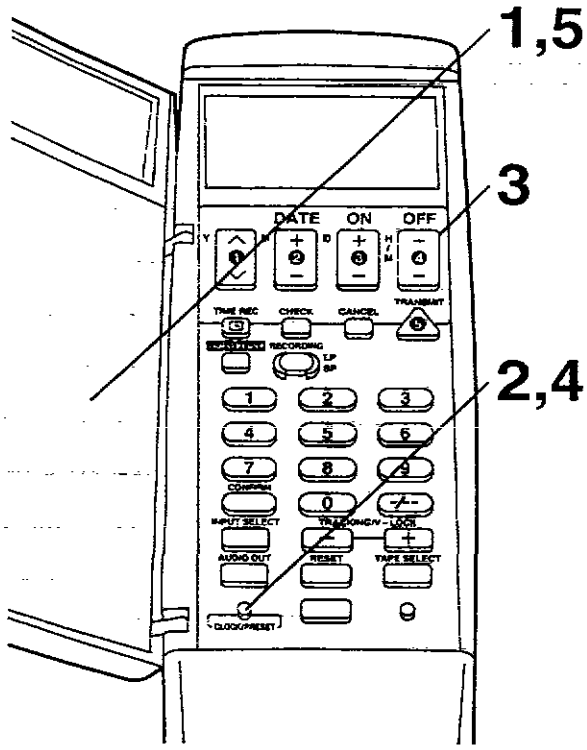
*Satellite input
To receive satellite stations, the satellite receiver must be connected to the VTR and programme position must be set depending on the type of the connection made.
A1: When the satellite receiver is connected to the AV socket
5~20: When the satellite receiver is connected by means of the RF coaxial cable. Follow the tuning procedure on page 16.

## Tuning Procedure Using the VTR Only

Stations can be tuned in by following the steps given below.
1 Press **TUNER PRESET** for more than 2 seconds.
2 Search for the TV station by pressing + or −, and then press **NEXT**.
3 Select programme position by using + or −.
4 Press **SHIFT** to memorize the broadcast station.
• To memorize the other stations, press **NEXT** and then repeat steps **2** to **4**.
5 Press **TUNER PRESET**.

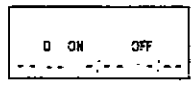
## Setting the Satellite Position on the Remote Controller

The remote controller must be set to the selected programme position for the satellite receiver, in order to record satellite stations using *Video Plus+ programming*.
**Note:**
This remote controller cannot be used to operate a satellite receiver.
**Preparation**
Set the clock of the remote controller first. See page 14.

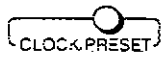



**Operations** **Display Symbols**

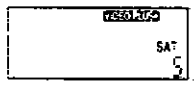
**1** Open the door of the remote controller.



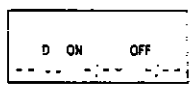

**2** Keep **CLOCK/PRESET** pressed for 2 seconds or more and then press it again.



**3** Select A1 or 5~20.




**4** Press **CLOCK/PRESET** twice.



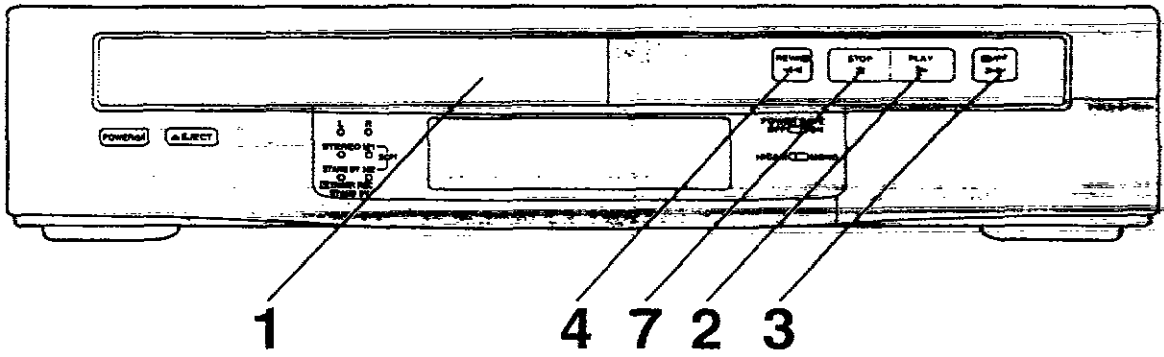

**5** Close the door of the remote controller.

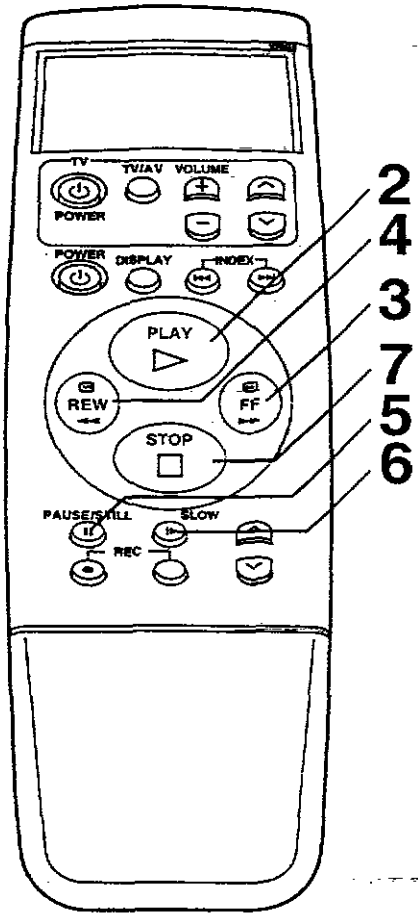
# Basic Operations

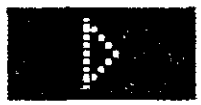
## Playback

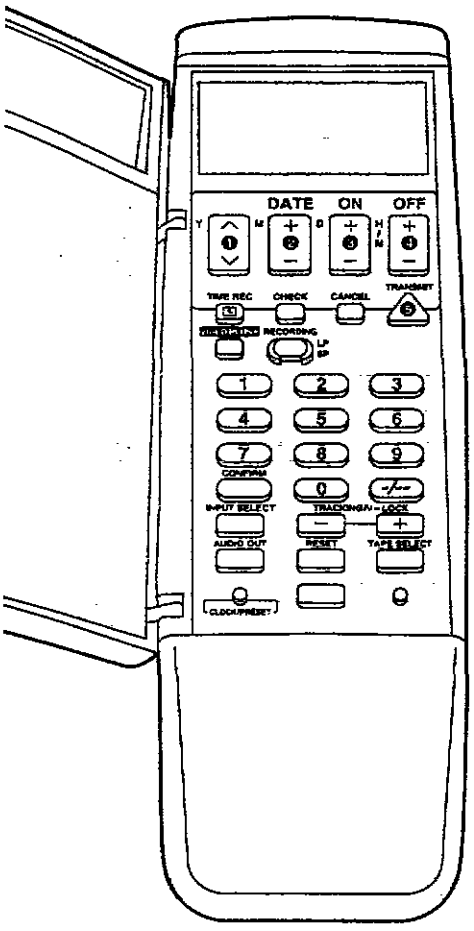
## Manual Recording

# Playback

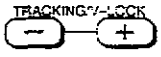



| Operations | Display Symbols | |
|---|---|---|
| 1 | | Insert a recorded cassette tape. |
| 2 PLAY ▷ |  | Start viewing the picture. |
| 3 → FF | | Search forward by briefly pressing **FF**.<br>•To change back to normal playback, press **PLAY**. |
| 4 → REW | | Search backward by briefly pressing **REW**.<br>•To change back to normal playback, press **PLAY**. |
| 5 → PAUSE/STILL | | View a still picture.<br>•To continue the normal playback, press **PLAY** or **PAUSE/STILL**. |
| 6 → SLOW | | View the slow motion picture.<br>•To continue the normal playback, press **PLAY**. |
| 7 STOP □ | | Stop viewing the picture. |




# To adjust the tracking and the vertical locking




For manual tracking adjustment
The + and – buttons are used to adjust the tracking when, for example, noise bars on the picture are better removed manually than by the automatic digital tracking control. Press both buttons together to return to automatic digital tracking control.

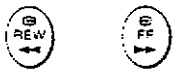
For slow tracking adjustment
When noise bars appear during Still or Slow playback, switch over to slow playback and adjust with the + or – button to reduce the noise bars.

For vertical locking adjustment
Use the + and – buttons to minimize any vertical jitter during still-picture playback

# Other Playback Functions

## To obtain High Speed Picture during Fast Forward or Rewind

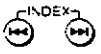
Keep FF pressed during fast forward.
Keep REW pressed during rewind.




## To find the Beginning of Each Recording

**Recording Index Signals**
Index signals are recorded in following cases.
- When a recording is started by pressing **REC**.
- When **REC** is pressed during recording.
- When timer recording is activated.

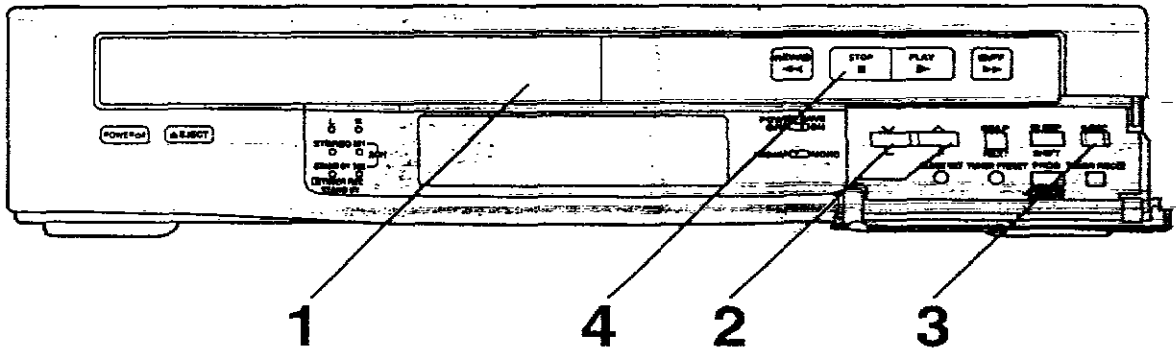
**For example:**
Searching for the 2nd recorded segment in the forward direction.
Press **INDEX** ▶▶I twice during playback or stop mode.

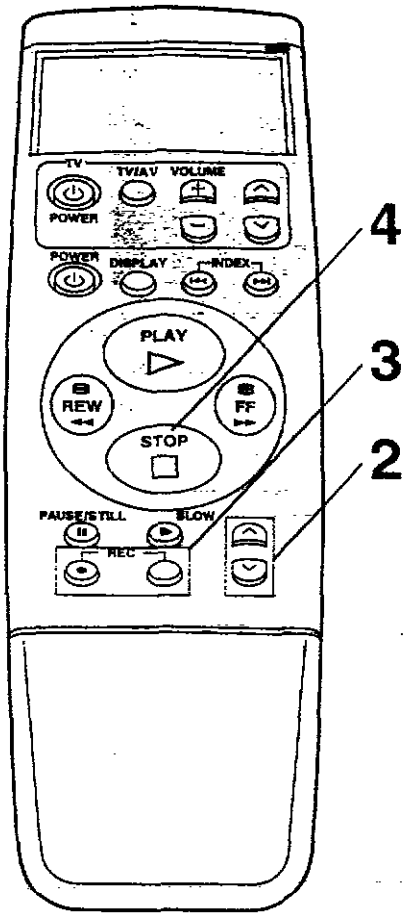


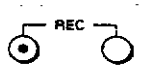
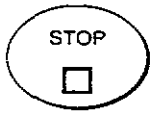
- After finding the specific recorded segment, playback starts automatically.
- For the reverse direction, press **INDEX** I◀◀.
- Up to 20 programmes can be searched for in both directions.
- When the incorrect numerical data has been entered, press **STOP** and enter the correct data.
- The figure on the display is decremented by 1 each time an index signal is located. Bear in mind that the display will be decremented in this way even while either **INDEX** button is being pressed.
- The INDEX search function can only work correctly, if the index signals are spaced at least 3 minutes apart in the SP mode and 5 minutes apart in the LP mode.

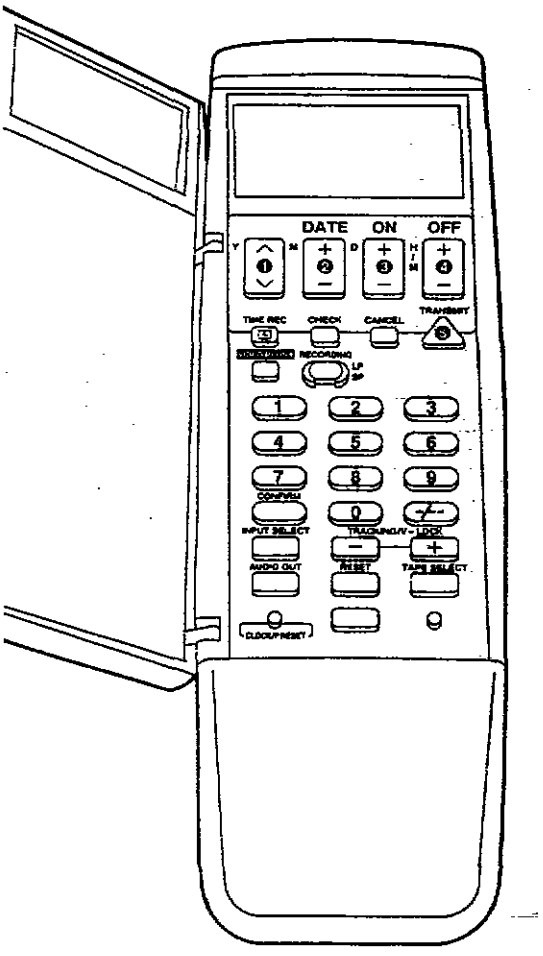
**Notes:**
- Cue, review or slow playback will be automatically released after 10 minutes, and still playback after 5 minutes.
- Even after manual adjustment, noise bars or vertical jitter may not be eliminated completely, especially for tapes recorded on another VTR. This is not malfunction.

# Manual Recording




| Operations | Display Symbols | |
|---|---|---|
| 1 | | Insert a cassette tape.<br>•If it has already been inserted, press POWER to turn the VTR on. |
| 2 | | Select TV station. |
| 3  | | Start recording. |
| 4  | | Stop recording. |




**Notes:**

- When a video cassette with a broken off tab is inserted, the "⊘REC" indication will flash to indicate that recording is not possible.
- The recording pause mode will be automatically released after 5 minutes, and reset to the stop mode.

## To select the Desired Tape Speed

1 Press **RECORDING SP/LP** to display the tape speed indicator.

2 Keep **RECORDING SP/LP** pressed for more than 2 seconds to change the tape speed.

SP gives the best picture quality.
LP gives the longest recording time.

## To interrupt Recording

Press **PAUSE/STILL** during recording.
Press again to continue recording.

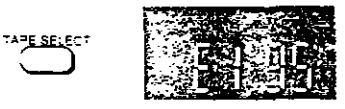
## To record One TV Programme while Viewing Another Programme

1 Refer to the manual recording operations steps 1 to 3 (page 22).

2 Select the TV programme on your TV set you wish to view at the present time.

## To display the Approximate Remaining Tape Time

1 Press **TAPE SELECT** to select the corresponding cassette tape length.




E195: For E30, -60, -80, -120, -180 and -195 tapes.
E240: For E240 tape.
E260: For E260 tape.

2 Press **DISPLAY**.

Clock → Counter → Remaining Tape Time

# Advanced Operations

## Timer Recording

Up to 8 timer programmes can be recorded up to one month in advance by setting the timer.

## The NICAM Broadcast System

## Editing

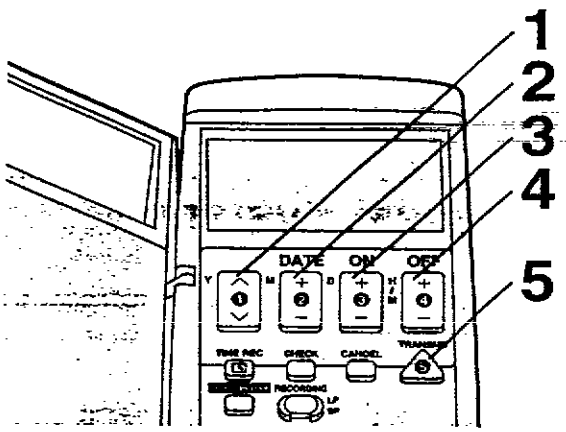
**Assembly Editing**
This enables you to record a new segment immediately after a previously recorded segment.

## Other Functions

**Automatic VTR Functions**

# Timer Recording

## Using the Remote Controller




### For Example:

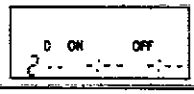
Programme position (channel); 2
Date; 27th, October
Starting time; 20:02
Ending time; 21:30

### Preparation

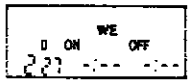
- Insert a cassette tape with an intact erasure prevention tab.
- Open the door of the remote controller.

### Operations — Display Symbols

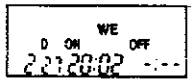
**1** Set Programme position (channel) "2".



**2** Set Date "27".

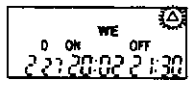


**3** Set Starting time "20:02".



- When it is kept pressed, the indication changes in 30-minute steps.

**4** Set Ending time "21:30".



**5** Press **TRANSMIT**.

- The VTR will be in Timer recording standby mode.

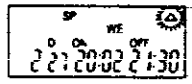
**6** Close the door of the remote controller.

### Timer Recording from External Signal Source

If Timer Recording is performed by a unit connected to the AV socket, select the A1 indicator in step 1 for the programme position.

### Selecting the Desired Tape Speed

Press **RECORDING SP/LP** in any of steps **2–4**.



### Checking a Timer Programme

- The timer recording indicator "⏲" is lit.

Press **CHECK** repeatedly until the desired timer programme number is displayed.

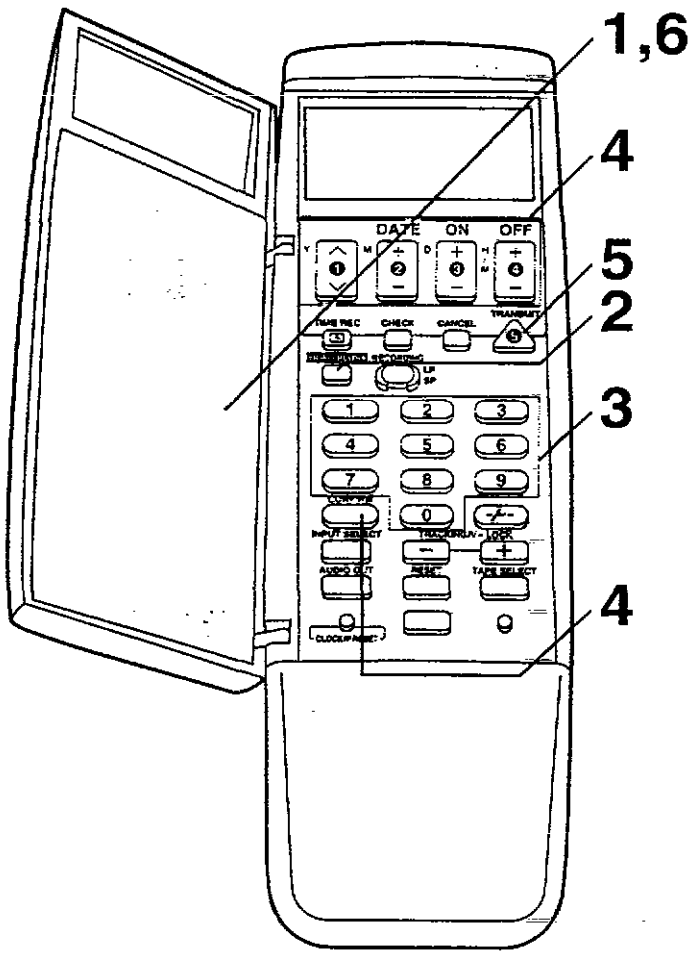
### Cancelling a Timer Programme

1 Press **CHECK** repeatedly until the desired timer programme number is displayed

2 Press **CANCEL**.

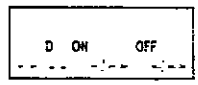
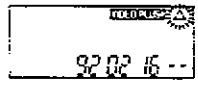
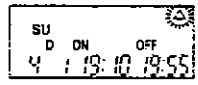
# Programming the Video Plus+ PlusCode

Programming is now easier than ever: simply enter the PlusCode provided in the programme schedule column carried by newspapers and magazines.
PlusCodes are numbers which are assigned to each programme listed in the TV programme schedule carried in newspapers and TV guides. When these codes are entered and **TRANSMIT** is pressed, the codes are converted into the actual programming and sent to the VTR.



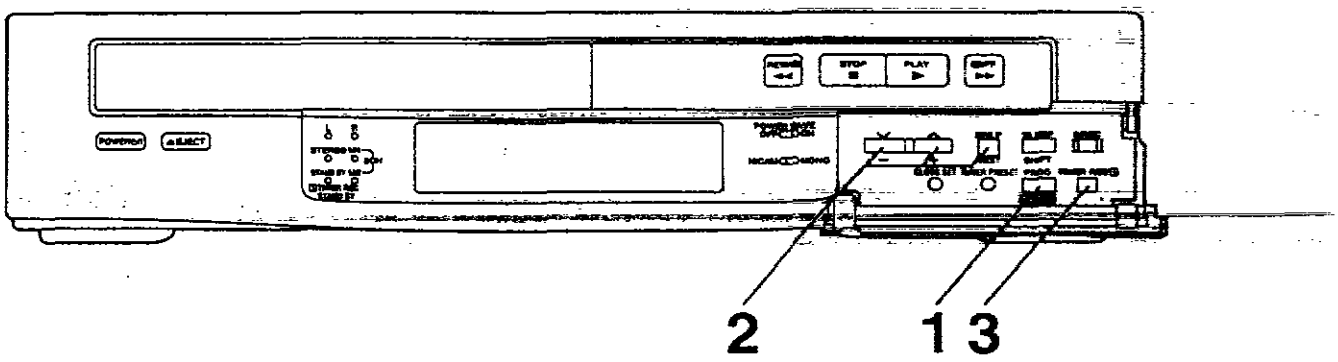

## Preparation

- Insert a cassette tape with an intact erasure prevention tab.
- Set the programme positions on both the VTR and remote controller as shown on pages 16–17.

| Operations | Display Symbols |
|---|---|
| **1** Open the door of the remote controller. |  |
| **2** Press **VIDEO PLUS+**. | |
| **3** Enter a PlusCode. Example: 920216 |  |
| **4** Press **CONFIRM** to check that the code corresponds to the right programme. |  |
| • To make any alterations, use buttons ❶~❹. | |
| **5** Press **TRANSMIT**. | |
| • The VTR will be in Timer recording standby mode. | |
| **6** Close the door of the remote controller. | |

**Notes:**

- To select the desired tape speed, press **RECORDING SP/LP** in any of steps **3–4**.
- When the PlusCode is used for programming, the recording time may be slightly longer than the actual programme time.
- Repeat steps **2** to **4** if "Err" appears on the display of the remote controller.
- When programming two or more programmes, repeat steps **2** to **5** after pressing **TRANSMIT**.
- The procedures for checking and cancelling whatever has been programmed are the same as for remote control programming. (See page 26.)




## Preparation

Insert a cassette tape with an intact erasure prevention tab.

## For Example:

| | |
|---|---|
| Timer programme number; | 1 |
| Programme position (channel); | 2 |
| Date; | 27th, October |
| Starting time; | 20:02 |
| Ending time; | 21:30 |
| (present date; 16th October) | |

## Operations

## Display Symbols

**1** PROG / CHECK → NEXT

Select **Timer Programme number** "1", and then press **NEXT**.

P1 – – – – – – – –: When nothing is programmed
P1 : When something has already been programmed

**2** Set each item by pressing + or − and **NEXT**.

Set **Programme position** (channel) "2".

− +

Set **Date** "27".

Set **Starting time** (hour) "20".

Set **Starting time** (minute) "02".

Set **Ending time** (hour) "21".

NEXT

Set **Ending time** (minute) "30".
●There is no need to press **NEXT**.

**3** TIMER REC

To activate timer recording, press **TIMER REC**.

### Timer Recording from External Signal Source
If Timer Recording is performed by a unit connected to the AV socket, select the A1 indicator for the programme position.

### Selecting the Desired Tape Speed
After step 2, press **NEXT** and select SP or LP by pressing + or −.

### Setting other Programmes in Succession
Repeat steps **1** and **2**.

### Checking a Timer Programme
Select the timer programme number to be checked by pressing **PROG/CHECK** while the timer recording function is on.

### Cancelling a Timer Programme
1 Release from the standby mode by pressing **TIMER REC**.

2 Select the timer programme number to be cancelled by pressing **PROG/CHECK**.

3 Press + and − simultaneously for more than 3 seconds.

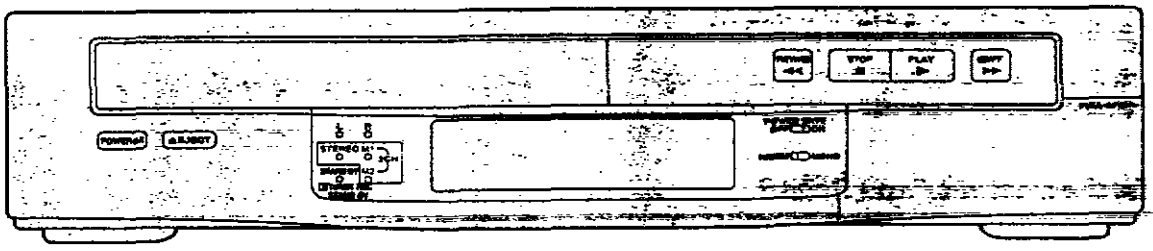
**Note:**
If a timer recording is not performed to the end (due to insufficient tape or cancellation by the user), the programmed timer recording data will be cancelled from the memory by 4 a.m. two days later.
However, if the Timer Record Function is activated at that time, the programmed timer recording data will be cancelled at 4 a.m. the next day.

# Optional Function

### PDC (Programme Delivery Control)
The Programme Delivery Control (PDC) is a very convenient system which assures that the TV programmes you have programmed for timer recording will be recorded exactly from beginning to end, even if the actual broadcasting time differs from the scheduled time due to delayed start or extension of the programme duration. Also, if a programme is interrupted and for example, some special news item is inserted, the recording will also be interrupted automatically and resumed when the programme continues.

- This model is not equipped with PDC function. The PDC function becomes operative when the VTR is equipped with the optional PDC decoder. Consult your authorized video dealer.
- If the VTR is equipped with the PDC decoder, the PDC indicator lights when the correct PDC signals are transmitted from the broadcasting station.
- When the unit is set for programmed recording, the PDC indicator lights whether or not PDC signals are transmitted. This indicates that the recording has been programmed with PDC. To programme a recording without PDC, press **SHIFT** in step **2**: this cancels the PDC function and turns off the PDC indicator.
  If this is not done, recording start time may be delayed by up to 1-minute from the programmed start time. This is not a malfunction.
- In the case of PDC recording, use the **correct** time (PDC time) for recording the TV programmes. PDC recording is not performed when the time (PDC time) is incorrect, even if only by one minute, i.e. start time as published in TV programme guide in newspaper, magazine, teletext, etc.
- Since PDC signals are received when a recording is programmed using PDC, the power of the unit's tuner section is turned on and the programmed broadcasting is received. When a multiple number of programmes have been programmed for timer recording, all of the broadcasts concerned will be received in sequence. These broadcast pictures can be seen on the video playback channel and AV (no sound).
- If the actual broadcasting times of timer recordings overlap (regardless of whether they are PDC-controlled), the recording that starts first always has priority, and the recording of the later programme will start only after the first timer recording has finished.
- When the PDC signal drops out because the broadcast signal is weak, or when a broadcasting station does not transmit a regular PDC signal, the timer recording will be performed in the normal mode (without PDC) even if it was programmed for PDC.
  In this case, even if the timer recording is performed, whatever has been programmed will not be cancelled at that particular time but at 4 a.m. on the following day.
- When programmes transmitted by different TV stations are programmed by PDC at time when one programme ends as another starts, the first minute at the start of the second programme will not be recorded.

# The NICAM Broadcast System



NICAM is a 2 Channel sound broadcast system to provide either a high quality stereo sound track or 2 independent MONO sound tracks, M1 and M2.

NICAM programmes are always accompanied by standard sound broadcasts and you can select the desired sound with **NICAM/MONO** (when recording) or with **AUDIO OUT** (when playback).

The NICAM digital stereo sound can only be recorded on the Hi-Fi audio track.

When a stereo, dual-soundtrack or mono NICAM programme is being received, the indicators are lit to inform you of the type of broadcast.

## Reception of a NICAM Stereo Broadcast

When the STEREO indicator is lit, set **NICAM/MONO** to NICAM to be able to record on the Hi-Fi sound track in stereo.
The Audio cable or the 21 pin scart cable must also be connected to a stereo TV in order to hear the NICAM sound in stereo.

## Reception of a NICAM Dual-Sound Broadcast

When the M1 and M2 indicators are lit, set **NICAM/MONO** to NICAM if you want to record both channels on the Hi-Fi sound track. M1 is the left-hand channel and M2 is the right-hand channel.

## Reception of a NICAM Monaural Broadcast

When a NICAM monaural broadcast is being received, only the M1 indicator is lit. To hear such a signal on both channels and to record it on both channels of the Hi-Fi track, set **NICAM/MONO** to NICAM

- To record the regular sound (ordinary normal sound) on the FM audio tracks when a NICAM programme is received, set **NICAM/MONO** to MONO.

**Important Note for the NICAM System:**
When this VTR tuner is switched on, it will automatically switch to a NICAM broadcast, if NICAM is being transmitted. During test transmissions, it is possible that the sound received doesn't correspond to the picture being viewed. In order to receive a synchronized sound and picture, select monaural sound with either **AUDIO OUT** or with **NICAM/MONO**. This will only apply until NICAM transmissions are fully operational
At this time the NICAM signal is transmitted on stereo channels only, since the M1 and M2 formats are not yet available. Even if the soundtrack is in MONO the stereo indicator will remain illuminated.

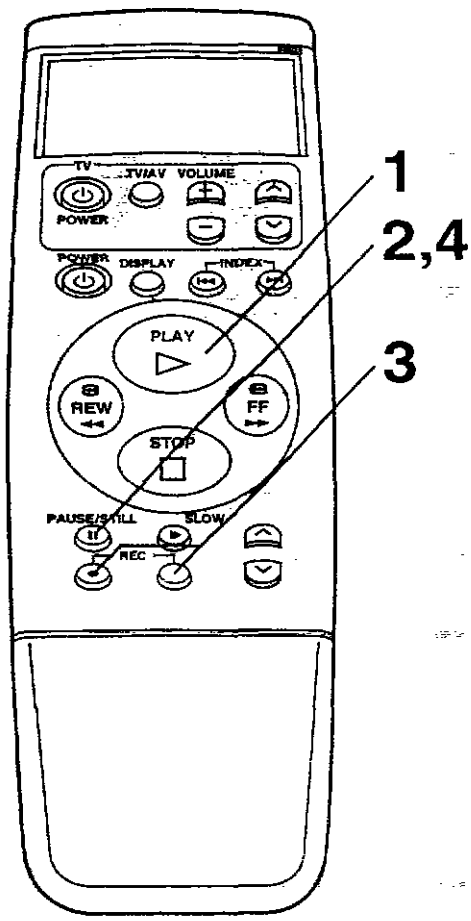
## Assembly Editing

This function can be used to make up an edited tape from other recordings or video sources.

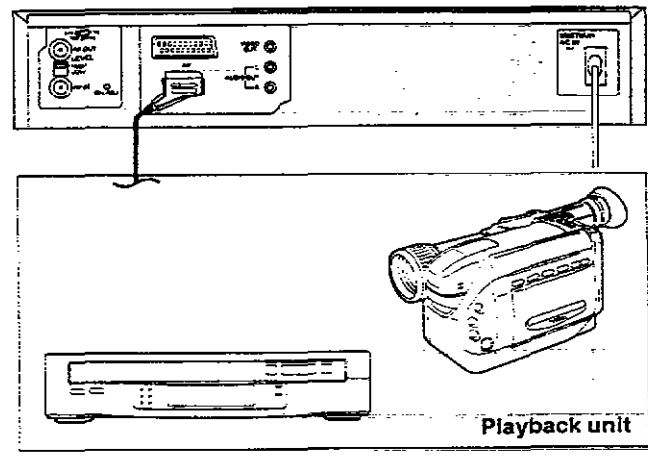
A new scene can be added to the end of a previous one.

### Preparation

- Connect a movie camera or another VTR to this VTR as shown.
- Insert a recorded cassette tape with an intact erasure prevention tab.
- Select the video source required by pressing **INPUT SELECT** to set A1.

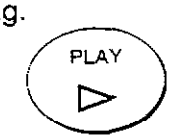



**Recording VTR**



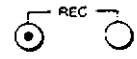

### Operations

**1** Search for the end of the previous recording.




**2** Press **PAUSE/STILL**.

**3** Set for the new recording by pressing **REC**.

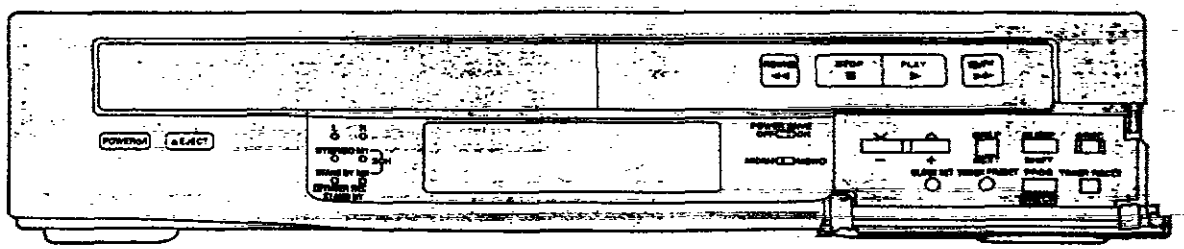



**4** Start the new recording by pressing **PAUSE/STILL** again.

**Notes:**

- The new sound will be recorded on both the normal and Hi-Fi sound tracks.
- Normal sound track is only for recording mono sound.

# Other Functions



## Automatic VTR Functions

### Automatic Playback
When a cassette without an erasure prevention tab is inserted, the VTR starts playback automatically.

### VTR-off Playback
When the VTR is off, an inserted cassette can be played back by pressing **PLAY**.

### Automatic Rewinding
When the tape reaches its end during recording (except for timer recording) or playback, it will automatically be rewound to the beginning.

### Automatic Switching Off and Ejection
When the VTR is switched off, an inserted cassette can be ejected simply by pressing **EJECT**. The VTR will eject the cassette and automatically turn itself off again.

### Automatic VTR Off Time Setting
Press **SLEEP** for the desired time.

- Up to 9 hours of sleep time can be set.
- Each press gives a 30 minutes time span internal.
- To cancel the setting time, press **SLEEP** repeatedly to set 0:00.

# Helpful Hints

## Setting the Clock of the VTR

## Before Requesting Service

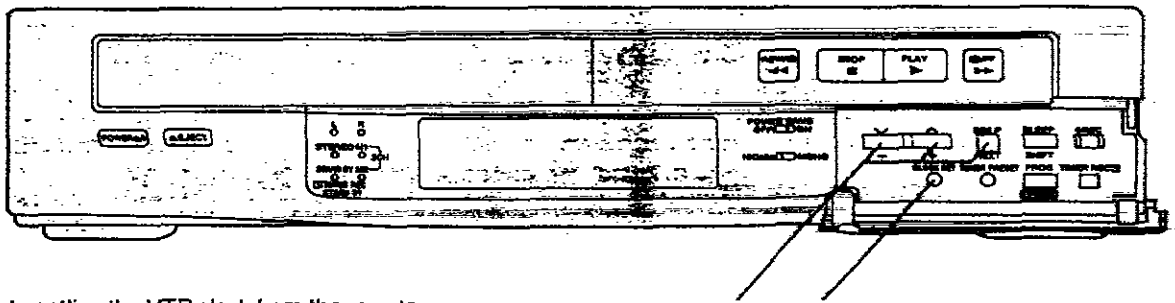
Before requesting service, check the following points once again.

## Precautions

Please read these cautions before you operate this VTR.

## Specifications

# Setting the Clock of the VTR




In addition to setting the VTR clock from the remote controller, it can also be set directly from the VTR.

**Preparation**
Turn on the VTR.

**For Example:**
Date: 16th, October, 1999
Time: 20:15

| Operations | Display Symbols | |
|---|---|---|
| **1** CLOCK SET ○ | | Keep **CLOCK SET** pressed for more than 2 seconds. |
| **2** Set each item by pressing + or – and **NEXT**. | | |
| – + | | Set **Year** "99". |
| | | Set **Month** "10". |
| ⬇ | | Set **Date** "16". |
| NEXT | | Set **Hour** "20". |
| | | Set **Minute** "15".<br>●There is no need to press **NEXT**. |
| **3** CLOCK SET ○ | | Press **CLOCK SET**.<br>●The clock will start. |

**Time Reset Function**
If the clock is less than two minutes slow or fast, it can easily be reset to the proper time.
For example: Resetting the clock to 12:00.00.
1 Press **CLOCK SET** at any time between 11:58.00 and 12:01.59 for more than 2 seconds.
2 Press **CLOCK SET** again as soon as you hear the 12:00.00 time signal.

**Note:**
The clock operates for up to 60 minutes by its backup system in the event of power failure.

# Before Requesting Service

Before requesting service, check the following points once again.

| VTR will not operate correctly | | | |
|---|---|---|---|
| **SYMPTOM** | **CAUSE** | **REMEDY** | **CHECKED** |
| VTR display is not illuminated. | Mains lead is not connected. | Reconnect mains lead to VTR. | |
| VTR display is illuminated but VTR will not operate. | VTR is in timer mode. | Press **TIMER REC** to operate VTR manually. | |
| | Safety devices are operating. | Disconnect mains lead and wait for 1 minute. Reconnect mains supply and check functions. | |
| | Condensation may have formed. | Do not operate VTR for 1 hour. | |

| Playback will not operate correctly | | | |
|---|---|---|---|
| **SYMPTOM** | **CAUSE** | **REMEDY** | **CHECKED** |
| Picture noisy or not in colour. Horizontal bars or lines run down the screen. | Tracking is not correct. | Adjust the tracking. See page 21. | |
| | TV set is not tuned to VTR. | Operate **TEST SIGNAL** on VTR and check TV tuning. See page 9. | |
| | Video heads are clogged or worn. | Consult your dealer for further advice. | |

## Recording will not operate correctly

| SYMPTOM | CAUSE | REMEDY | CHECKED |
|---|---|---|---|
| "[ ]" indication flashes whenever recording is attempted. | Erasure prevention tab on cassette is broken off. | Use tape with intact erasure prevention tab, or cover tab hole with adhesive tape, if original recording is no longer required. | |
| Picture is recorded with noise or blank screen. | Aerial or aerial lead is defective. | Check aerial connection to VTR. See page 8. Check your normal TV picture. If there is no picture, check your aerial. | |
| | VTR is not correctly tuned. | Re-tune VTR. See page 16. Ensure input selector set to TV programme. | |
| Timer recording cannot be performed. | Clock or calendar is incorrectly set. | Check clock and calendar. Set to present time. (Note this is a 24 hour clock.) See page 14. | |
| | Recording start or end time settings are incorrect. | Set recording start and end time correctly. | |
| | VTR is not set for timer recording. | Press **TIMER REC** after programming for timer recording | |
| AV external recordings cannot be made. | Input selector is not correctly set. | Select A1. | |
| | External AV connections are incorrect. | Check that connections for external video and audio source are correct. See page 31. | |

## Remote controller will not work correctly

| SYMPTOM | CAUSE | REMEDY | CHECKED |
|---|---|---|---|
| Remote controller does not operate correctly. | Remote controller transmitter beam is not reaching VTR. | Ensure that remote controller is being pointed at VTR and that transmitter beam is not obstructed. | |
| | Distance is too far. | Use remote controller within 7 m of VTR. If this range is not possible, replace batteries. | |
| | Batteries are exhausted. | Replace batteries. Note precaution for replacement on page 11. | |
| | Batteries are incorrectly fitted with (+/−) reversed. | Fit batteries correctly as shown on page 11. | |

# Precautions

Please read these cautions before you operate this VTR.

### Avoid Sudden Changes in Temperature

If the VTR is suddenly moved from a cold place to a warm place, condensation may form on the tape and inside the VTR.

### Humidity and Dust

Avoid places where there is high humidity or much dust, which may cause damage to internal parts.

### Do Not Obstruct the Ventilation Holes

The ventilation holes prevent abnormal increases in temperature. Do not block or cover these holes. Especially avoid covering the holes with soft materials such as cloth or paper.

### Keep away from High Temperature

Keep the VTR away from extreme direct heat such as direct sunlight, heating radiators, or closed automobiles.

### Keep Magnets away

Never bring a magnet or magnetized object near the VTR because it will adversely affect the performance of the VTR.

### No Fingers or Other Objects Inside

Touching internal parts of this VTR is dangerous, and may cause serious damage to the VTR. Do not attempt to disassemble the VTR. There are no user serviceable parts inside.

### Keep Water away

Keep the VTR away from flower vases, tubs, sinks, etc.
CAUTION: If liquids are spilled into the VTR, serious damage could occur. If you spill any liquid into the VTR, consult qualified service personnel.

### Cleaning the VTR

Wipe the VTR with a clean, dry cloth. Never use cleaning fluid, or other chemicals. Do not use compressed air to remove dust.

### Stacking

Place the VTR in a horizontal position, and do not place anything heavy on it.

### Video Head Clogging

The video heads place picture signals on the tape during recording and read picture signals from the tape during playback and they are, therefore, of critical importance for the picture quality. If the VTR is used over extremely long periods of time, these heads may become dirty and clogged. In such a case, the signals can no longer be recorded correctly, and the playback picture will be distorted accordingly. This is the case, when for example, during the playback of a tape, the sound is reproduced normally, but no picture is seen, or the picture is greatly distorted. When such a symptom occurs consult your dealer for further advice.

### Condensation may form in the VTR if:

- The VTR is in a room where the heater has just been turned on.
- The VTR is in a room with steam or high humidity.
- The VTR is brought from cold surroundings into a well-heated room.
- The VTR is suddenly brought from cool surroundings, such as an air-conditioned room or car, to a place which is hot and humid.

**Note:**
Do not operate the VTR for at least 1 hour if any of the above conditions occur.
This VTR does not incorporate a dew sensor.

### Tape Care

Some do's and don'ts on tape care.

**DO:**

1) Use a good quality branded tape, such as Panasonic.
2) Keep in the Box supplied with your tape, or a video case, when not in use.
3) Try to use all the tape on a cassette by making recordings not only at the tape start but also in the middle and end sections. This will avoid many repeated recordings at the beginning of the tape resulting in premature wear.
4) Take care to insert a tape correctly into the VTR to avoid damage.

**DO NOT:**

1) Expose the tape to high humidity or temperature.
2) Expose to liquid.
3) Expose to dust particles by storing directly on a carpet for example.
4) Use a damaged tape or attempt to repair.
5) Dismantle the cassette housing.
6) Attempt to lift the front cassette flap or touch the tape surface.

# Specifications

**NV-HD90B...(U.K. model)**

Information for Your Safety

| | | | |
|---|---|---|---|
| **Power Source:** | 220–240 V AC 50–60 Hz | | |
| **Power Consumption:** | 32 watts | | |
| **Video Recording System:** | 2 rotary heads, helical scanning system | | |
| **Video Heads:** | 4 heads | | |
| **Tape Speed:** | SP; 23.39 mm/sec. | | |
| | LP; 11.7 mm/sec. | | |
| **Tape Format:** | VHS tape | | |
| **Record/Playback Time:** | SP; 240 min. with NV-E240 | | |
| | LP; 480 min. with NV-E240 | | |
| **VIDEO** | | | |
| **Television System:** | CCIR; 625 lines, 50 fields, PAL colour signal | | |
| **Modulation System:** | Luminance; FM azimuth recording | | |
| | Colour signal; converted subcarrier phase shift recording | | |
| **Input Level:** | AV; | 1.0 Vp-p, | 75 ohm, terminated |
| **Output Level:** | VIDEO OUT (PHONO); | 1.0 Vp-p, | 75 ohm, terminated |
| | AV; | 1.0 Vp-p, | 75 ohm, terminated |
| | RF Modulated; | UHF channel 36 (±6), | 75 ohm |
| **AUDIO** | | | |
| **Input Level:** | AV; | −6 dBV, | more than 10 kohm |
| **Output Level:** | AUDIO OUT (PHONO); | −8 dBV, | less than 1 kohm |
| | AV; | −6 dBV, | less than 1 kohm |
| **Audio Track:** | 1 track (Normal-mono only), 2 channels (Hi-Fi sound-stereo) | | |
| **Video Horizontal Resolution:** | Colour; more than 240 lines (SP) | | |
| **Dynamic Range:** | Audio; more than 90 dB (Hi-Fi audio track) | | |
| **Audio Frequency Response:** | 20 Hz–20 kHz | | |
| **Wow and Flutter:** | 0.005% Wrms/Hi-Fi | | |
| **Operating Temperature:** | 5°C–40°C | | |
| **Operating Humidity:** | 35%–80% | | |
| **Weight:** | 5.0 kg | | |
| **Dimensions:** | 430 (W)×96 (H)×349 (D) mm | | |
| **Standard Accessories:** | 1 pc. RF Coaxial Cable | | |
| | 1 pc. Remote Controller | | |
| | 2 pcs. "R6" size batteries | | |
| | 1 pc. AC Mains Lead | | |

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

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VQT5592

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**Matsushita Electric Industrial Co., Ltd.**
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